

## CLAIMS

What is claimed is:

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1. A modular hearing air comprising:
- 10 a base unit adapted to contain any of a microphone, a receiver, a battery, electronics and controls, and wherein the base unit can be replaced after use; and
- an earmold removably attached to the base unit, the earmold comprising a compliant material and comprising a retention mechanism for connection to the base unit such that the earmold can be connected to the base unit or removed from the base unit and replaced after use on a more frequent basis than the replacement of the base unit.
2. A modular hearing air comprising:
- 15 a base unit adapted to contain any of a microphone, a receiver, electronics and controls; and
- an earmold removably attached to the base unit, the earmold comprising a compliant material, a retention mechanism for connection to the base unit such that the earmold can be connected to the base unit or removed from the base unit and replaced after use, and the earmold comprising a battery integrated with the earmold.
3. The modular hearing aid of Claim 2 wherein the earmold further comprises a shell integrated with the earmold, the shell housing the battery.
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- A modular hearing air comprising:
- a base unit adapted to contain any of a microphone, electronics and controls; and
- an earmold removably attached to the base unit, the earmold comprising a compliant material, a retention mechanism for connection to the base unit such

that the earmold can be connected to the base unit or removed from the base unit and replaced after use, and the earmold comprising both a battery and a receiver integrated with the earmold.

5. The modular hearing aid of Claim 4 wherein the earmold further comprises a shell integrated with the earmold, the shell housing the battery and the receiver.

A modular hearing aid comprising:

a base unit adapted to contain any of a microphone, a battery, electronics and controls; and

an earmold removably attached to the base unit, the earmold comprising a compliant material, a retention mechanism for connection to the base unit such that the earmold can be connected to the base unit or removed from the base unit and replaced after use, and the earmold comprising a receiver and a shell, the shell integrated with the earmold and the receiver housed within the shell.

7. The modular hearing aid of Claim 6 wherein the receiver is integrated with the earmold.

8. The modular hearing aid of Claim 1 wherein the earmold forms an earmold tip for attachment to a distal end of the base unit.

9. The modular hearing aid of Claim 1 wherein the earmold forms an earmold sleeve for attachment to at least a portion of the base unit.

- 20 10. The modular hearing aid of Claim 1 wherein the earmold forms an earmold tip  
and an earmold sleeve for attachment to the base unit.

14. A modular hearing aid comprising:

a base unit adapted to contain any of a microphone, a receiver, a battery and controls;

an earmold removably attached to the base unit, the earmold comprising a compliant material and comprising a retention mechanism for connection to the base unit such that the earmold can be connected to the base unit or removed from the base unit and replaced after use; and

a module comprising a shell and electronics, the module removably connected to the earmold and removably connected to the base unit such that the module can be disconnected from the base unit and the earmold and replaced after use.

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12. The modular hearing aid of Claim 11 wherein the earmold further comprises a battery removably attached to the earmold.
13. The modular hearing aid of Claim 11 wherein the module further comprises a receiver.
- 15 14. The modular hearing aid of Claim 11 wherein the earmold further comprises a battery integrated with the earmold.
15. The modular hearing aid of Claim 14 wherein the module further comprises a receiver.
- 20 16. The modular hearing aid of Claim 14 wherein the module further comprises a microphone.
17. The modular hearing aid of Claim 11 wherein the earmold forms an earmold tip for attachment to a distal end of the base unit.

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18. The modular hearing aid of Claim 11 wherein the earmold forms an earmold sleeve for attachment to at least a portion of the base unit.

19. The modular hearing aid of Claim 11 wherein the earmold forms an earmold tip and an earmold sleeve for attachment to the base unit.

20. A modular hearing air comprising:

a base unit adapted to contain a microphone, a receiver, electronics and controls; and

an earmold comprising a compliant material integrated with a battery, the earmold having a flexible, mushroom shaped earmold tip and comprising a retention mechanism for connection to the base unit such that the earmold can be connected to the base unit or removed from the base unit and replaced after use.

21. A modular hearing aid comprising:

a base unit adapted to contain a microphone and electronics; and

an earmold comprising a compliant material integrated with a battery and a receiver, the earmold having a flexible, mushroom shaped earmold tip and comprising a retention mechanism for connection to the base unit such that the earmold can be connected to the base unit or removed from the base unit and replaced after use.

22. A method for replacing an earmold of a modular hearing aid comprising the steps:

providing a modular hearing aid having a base unit and an earmold;  
releasing a securing mechanism between the earmold and the base unit;  
removing the earmold from the base unit;  
discarding the earmold;  
placing a second earmold onto the base unit; and

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attaching the securing mechanism.

23. A method for replacing a base unit of a modular hearing aid comprising the steps:

providing a modular hearing aid having a base unit and an earmold;  
releasing a securing mechanism between the earmold and the base unit;  
removing the base unit from the earmold;  
discarding the base unit;  
placing a second base unit onto the earmold; and  
attaching the securing mechanism.

10 ~~24.~~ A method for replacing a component of a modular hearing aid comprising the steps:

providing a modular hearing aid having a base unit component, an earmold component and a module component;

releasing at least one securing mechanism among the earmold component, base unit component and module component;

- removing a component from the modular hearing aid;
- discarding the component;
- replacing the component; and

attaching the at least one securing mechanism among the earmold component, base unit component and module component.

Sub 25. A flexible earmold tip for a hearing aid comprising:

a vibration isolator portion adapted for attachment within a hearing aid, the vibration isolator portion having a receiver disposed therein and wherein the receiver includes a diaphragm adapted to vibrate in operation creating acoustical vibrations which cause the receiver to mechanically vibrate and wherein the

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33. The flexible earmold tip of Claim 25 wherein the hearing aid includes a base unit in which is mounted a microphone and the vibration isolation portion comprises a nest in which the receiver sits to acoustically seal the receiver within the vibration isolation portion thereby acoustically isolating the base unit from the acoustical vibrations created by the receiver.
34. The flexible earmold tip of Claim 25 wherein the vibration isolator portion partially covers the receiver.
35. The flexible earmold tip of Claim 34 further comprising an adhesive wherein the adhesive secures and acoustically seals the receiver to the earmold.
36. A hearing aid comprising:
  - a hearing aid base unit having a microphone, a battery and electronics;
  - and
  - a flexible earmold tip having a vibration isolator portion, a mushroom shaped tip portion and a sound bore, the vibration isolator portion enclosed by the base unit and having a receiver electrically attached to the base unit wherein the receiver includes a diaphragm adapted to vibrate in operation causing the receiver to mechanically vibrate and wherein the vibration isolation portion attenuates vibrations from the receiver, the mushroom shaped tip portion being attached to the vibration isolator portion, and the sound bore formed between the vibration isolator portion and the mushroom shaped tip portion and the sound bore providing a channel for the transfer of sound from the receiver to an ear canal of a user.
37. The hearing aid of Claim 36 wherein the sound bore comprises a spring and a compliant material surrounding the sound bore wherein the spring prevents

collapsing of the sound bore and controls the flexibility of the flexible earmold tip.

38. The hearing aid of Claim 36 wherein the flexible earmold tip further comprises an outlet port which allows collection of earwax without clogging the sound bore.

39. The hearing aid of Claim 36 wherein the vibration isolation portion mechanically decouples the receiver from the base unit to isolate the mechanical vibrations of the receiver from the base unit.

40. The hearing aid of Claim 36 wherein the mushroom shaped tip portion creates a seal with an ear canal to acoustically isolate the hearing aid base unit from acoustical vibrations created by the receiver.

41. The hearing aid of Claim 36 wherein the vibration isolation portion comprises a nest in which the receiver sits to acoustically seal the receiver within the vibration isolation portion thereby acoustically isolating the base unit from acoustical vibrations created by the receiver.

42. A method for attenuating feedback in a hearing aid comprising:  
providing a hearing aid base unit, a receiver, and a hearing aid tip having a flexible mushroom shaped tip portion and vibration isolator portion;  
surrounding the receiver with the vibration isolator portion to attenuate acoustic vibrations and mechanical vibrations created by the receiver during operation; and  
securing the vibration isolator portion and receiver within the hearing aid base unit.

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43. The method of Claim 42 further comprising placing the hearing aid within an ear such that the mushroom shaped tip portion forms a seal with the ear canal to attenuate acoustic vibrations produced by the receiver.

44. A hearing aid comprising:  
a base unit having an inside portion, the base unit adapted to contain any of a microphone, a receiver, a battery, electronics and controls; and  
a potting material which pots at least a portion of the inside portion of the base unit, wherein the material increases the mass of the hearing aid and wherein the material attenuates vibrations created by the receiver during operation.

45. The hearing aid of Claim 44 wherein the hearing aid is disposable.

46. The hearing aid of Claim 44 wherein the potting material forms an acoustical barrier inside the hearing aid between the receiver and the microphone.

47. A method for reducing feedback in a hearing aid comprising:  
providing a hearing aid having an inside portion adapted to contain any of a microphone, a receiver, a battery, electronics and controls;  
potting at least a portion of the inside portion of the hearing aid with a material, thereby increasing the mass of the hearing aid;  
attenuating vibrations created by the receiver during operation through the increased mass of the hearing aid; and  
reducing feedback in the hearing aid by attenuating vibrations created by the receiver.

48. A disposable hearing aid comprising:

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a hearing aid portion wherein the hearing aid portion comprises a shell containing a battery, a receiver, a microphone and electronics;

a flexible core attached to the hearing aid portion, the flexible core forming a sound bore, thereby allowing sound produced by the hearing aid portion to travel to the ear canal; and

a compliant tip portion adapted to be inserted into an ear canal, wherein the tip portion surrounds the flexible core and wherein the tip portion forms an acoustic seal in the ear canal.

49. The disposable hearing aid of Claim 48 wherein the tip material comprises layers of fingers surrounding the flexible core.

50. The disposable hearing aid of Claim 49 wherein the layers of fingers comprise an elastomer material.

51. The disposable hearing aid of Claim 48 wherein the tip material comprises a fluid-filled bladder surrounding the flexible core.

52. The disposable hearing aid of Claim 51 wherein the fluid-filled bladder comprises air within the bladder.

53. The disposable hearing aid of Claim 51 wherein the fluid-filled bladder comprises liquid within the bladder.

54. The disposable hearing aid of Claim 51 wherein the fluid-filled bladder further comprises a flexible bladder wall to allow for flexibility of the fluid-filled bladder to accommodate size changes within the ear canal.

A covering for a hearing aid comprising:

an earmold comprising a compliant material;  
a shell integrated with the earmold wherein the shell allows the attachment of a hearing aid base unit; and  
a battery mounted within the covering.

56. The covering of Claim 55 wherein the covering further comprises a receiver.

57. A covering for a hearing aid comprising:

- an earmold comprising a compliant material;
- a shell integrated with the earmold wherein the shell allows the attachment of a hearing aid base unit; and
- a receiver mounted within the covering.

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